

**REMARKS**

This is intended as a full and complete response to the Office Action mailed March 3, 2004. Claims 1-11 were examined. The Examiner rejected claims 1-5 and 7-11 under 35 U.S.C. § 103(a) as being obvious in view of Mayer in combination with Yanagawa and claim 6 under 35 U.S.C. § 103(a) as being obvious in view of Mayer and Yanagawa in further combination with Itoh. For the reasons set forth below, Applicant respectfully traverses.

**Claim Rejections – 35 U.S.C. § 103(a)**

The Examiner rejected claim 1 under 35 U.S.C. § 103(a) as obvious in view of U.S. Patent No. 5,526,454 to Mayer in combination with U.S. Patent No. 5,583,958 to Yanagawa et al. Claim 1 recites the limitations of “at least some of said fibers are at least partially inserted into said troughs, such that at least a first fiber of said fibers is at least partially inserted into said troughs, and at least a second fiber of said fibers crosses the first fiber.” As the Examiner admits in the Office Action, Mayer does not disclose these limitations. Applicant submits that Yanagawa also does not teach or suggest these limitations.

The Examiner states that Fig. 5 of Yanagawa shows a crossing optical portion, “wherein the optical fibers are coupled to optical circuit chips, which may include branching planar waveguides.” However, Yanagawa only discloses two different sets of overlapping optical fibers that are used to connect the optical waveguide chips to various pieces of office equipment and monitoring and testing devices. See, e.g., Yanagawa at col. 7, lines 14-32. Applicant contends that these crossing portions of fiber are not, in any way, part of an optical waveguide structure, which is the subject matter of claim 1. More specifically, Fig. 5 of Yanagawa fails to teach or

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suggest an optical waveguide structure having a crossing and having optical fibers that cross (at the crossing) and reside at least partially in troughs formed in a substrate, as recited in claim 1.

Since Mayer and Yanagawa each fails to teach or suggest the limitations of "at least some of said fibers are at least partially inserted into said troughs, such that at least a first fiber of said fibers is at least partially inserted into said troughs, and at least a second fiber of said fibers crosses the first fiber," these references, either alone or in combination, cannot render claim 1 obvious.

In addition to the foregoing, Yanagawa does not constitute analogous art and therefore was improperly relied on by the Examiner. First, Yanagawa is not in the same field of endeavor as Applicant's invention. The primary subject matter of the Applicant's invention is an optical waveguide structure that includes both planar optical waveguide branches and optical fiber crossings and provides low optical attenuation, including attenuation caused by crosstalk. See Application at p. 1, lines 11-14 and at p. 5, lines 30-36. By contrast, the subject matter of Yanagawa, though, is an optical device that can be used to build both single star and passive double star systems for connecting terminal equipment and office equipment on a network. See Yanagawa at col. 1, lines 6-10 ("[t]he present invention relates to an optical device . . . which is applicable to both a single star system and a passive double star system"), at col. 1, lines 15-20 ("a single star system is known in which pieces of terminal equipment are connected to office equipment with use of optical fibers exclusively for respective terminal equipment") and at col. 1, lines 65-67 ("[a]lso, the passive double star system having a similar function is shown in Fig. 4"). Since the optical device taught by Yanagawa serves a completely different purpose than Applicant's optical waveguide structure, one skilled in the art would recognize these inventions to be in different fields of endeavor.

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Second, Yanagawa is not at all relevant to the particular problem solved by Applicant's invention. The specification is clear that the Applicant's invention addresses certain limitations found in prior art optical waveguide structures used in circuit boards such as, for example, the high rate of attenuation associated with planar waveguides (see Application from p. 3, line 33 to p. 4, line 14), the crosstalk between planar waveguides (see Application p. 4, lines 16-32) and the lack of branching with optical fibers (see Application p. 5, lines 8-10). By contrast, Yanagawa provides an optical device that can be used in both single star and passive double star systems to address the cost and labor issues with constructing a single star system after constructing a passive double star system. See Yanagawa at col. 2, lines 27-42. As persons skilled in the art would recognize, the problem addressed by Yanagawa has no relation to the problem addressed by Applicant's invention.

For these reasons, Applicant contends that Yanagawa constitutes nonanalogous art, thereby making the Examiner's reliance on Yanagawa in the § 103(a) rejection of claim 1 impermissible.

Based on the foregoing, Applicant respectfully submits that claim 1 is in condition for allowance and requests the withdrawal of the § 103(a) rejection of this claim. Further, since claims 2-4 all depend on allowable claim 1, these claims also are in condition for allowance.

Independent claims 5 and 7 recite limitations similar to those described above in conjunction with claim 1. Applicant therefore respectfully submits that claims 5 and 7 are in condition for allowance for at least the same reasons as claim 1. Further, since claims 6 and 8-11 all depend from either allowable claim 5 or allowable claim 7, these claims also are in condition for allowance.

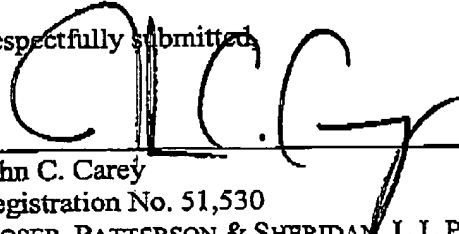
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**CONCLUSION**

Having addressed all issues set out in the Office Action mailed on March 3, 2004, Applicant respectfully submits that the pending claims are in condition for allowance and requests that these claims be allowed. If the Examiner has any questions, please contact the Applicant's undersigned representative at the number provided below.

Respectfully submitted,



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